8. Strategies to promote e-health and telemedicine activities in developing countries

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Introduction

Logic suggests that employing information and communication technology (ICT) to deliver health care at distance (i.e. telehealth or e-health) would be useful to address at least some of the problems in developing countries. There is a growing body of literature to attest to this argument.\(^1\)\(^-\)\(^3\) In the early 1990s, there was a general expectation that e-health would solve the main problems in health care in developing countries. However, the progress actually made with e-health in developing countries has been rather limited to date. It is also true that the use of e-health in industrialized countries is limited.\(^4\)

What are the factors that have prevented developing countries from using e-health? What strategies might promote the use of e-health?

Role of national governments in promoting e-health

Governments as policy-making organizations play a pivotal role in formulating regulations in the health sector. The contribution of the government is particularly important in developing countries, where the public health system is usually the major provider of services. Government policies often have a significant impact on governing, financing and regulating the health sector in developing countries.\(^5\)

Most developing countries in recent years have recognized the importance of ICT in their economic development and social progress.\(^6\)\(^-\)\(^8\) A number of countries in the developing world have initiated national policies towards integrating ICT into their economic plans.\(^9\)\(^-\)\(^12\) However, it is surprising that, in most cases, these national ICT initiatives have not considered the health sector as an important sector.

We believe that the exclusion of the health sector in national ICT initiatives is a major cause of the slow progress of e-health in developing countries. The factors contributing to this situation are described below.

Reasons for non-adoption of e-health

The reasons for the non-adoption of e-health include:

- lack of awareness of the benefits among policy makers
- lack of evidence for the benefits
- limited finance
- prejudice
- lack of expertise
- health system inertia.

First, we assume that one powerful reason for this situation is a lack of awareness of policy makers about the benefits of e-health. Although policy makers in developing countries commonly believe that ICT can be used in the development of industry, agriculture and other economic and social activities, they are not aware of the benefits that the health sector can derive through the use of ICT. There can be many reasons for this. The health/medical sector is a very sensitive area where traditional ways of working have evolved over centuries and, as a result, there is resistance to change. Health is also closely linked with privacy and security concerns. Therefore, the introduction of ICT into health care institutions may not be as straightforward as in other sectors, such as commerce and education.

Lack of evidence about the benefits of e-health may be another reason for policy makers being unaware of e-health. Even in industrialized countries, there is a dearth of hard evidence with regard to the successful use of e-health. Similar evidence from developing countries is even scarcer. The lack of a sustainable business case to demonstrate cost-effectiveness is the root cause.

Although policy makers in developing countries are aware of the benefits of e-health, for a range of reasons they are reluctant to include this tool in their ICT initiatives. First, this may be due to limited financial capability. Policy makers are more likely to spend their limited resources on interventions that are known to produce health gain, such as sanitation, clean drinking water and vaccination, rather than funding e-health projects. The critical state of the health sector and its financial limitations may not allow policy makers to change their traditional patterns of spending health funding, even when they are aware of the benefits of e-health. In some of the wealthier developing countries that have good health care services, there seems to be a lack of people within the health sector who can champion the cause of e-health with policy makers.

Reluctance to use e-health may also stem from certain prejudices. Policy makers in developing countries may regard e-health as a family of methods imported from the industrialized world that have little relevance in their own countries. E-health may even be seen as the imposition of new methods from the Western world or former colonial authorities, i.e. as a form of neocolonialism.

Even when they have an understanding of the benefits of e-health, policy makers in developing countries may be hesitant to use it owing to a lack of expertise, infrastructure, technical knowledge and skills. Starting an e-health project requires the presence of people with a certain level of technical expertise, and this may not be available in many developing countries. In addition, the telecommunication infrastructure in developing countries is still limited. These factors make it difficult for developing countries to launch e-health projects on their own.

Aspects such as inertia, reluctance to change and a lack of political will are also important factors that prevent policy makers from considering e-health as an alternative for addressing health problems in developing countries. Reluctance to change traditional methods of practice has been a serious obstacle to integrating e-health in the industrialized world too. The introduction of a new practice is always demanding, and in that respect the role of champions...
or enthusiasts is extremely important. The lack of such champions in policy-making circles may be a strong reason for the current situation.

Another important factor, perhaps due to a combination of the factors mentioned above, is the need for long-term investment in telehealth and e-health, in order to build an infrastructure and the human resources required to demonstrate success. This is impeded by the relatively short political cycle, which requires short-term political rewards for investments.

**Strategies at national level**

Strategies to promote e-health at national level include:

- raising awareness of policy makers
- expanding e-health education
- changing the attitude of policy makers
- using expatriate communities.

One way of addressing the problems outlined above is to alert policy makers to the benefits of e-health. There needs to be a systematic way of making them aware of the current state of e-health practice and successful applications. It is important to make them aware of aspects of e-health that are applicable in developing countries. To do so, improving access to the evidence base in e-health is extremely important. Making updated information about successful e-health projects available to policy makers is one way of achieving this goal. Enthusiasts within the health sector, both IT and health professionals, may also play a pivotal role in making policy makers aware of the benefits of e-health.

The importance of e-health education has so far been overlooked. Evidence shows that access to systematic education in e-health is limited in both industrialized and developing countries. Systematic education in e-health for health personnel must be at the heart of any strategy designed to facilitate e-health. An understanding of the benefits of e-health, current applications, technical requirements and the ethical/legal aspects would enable health professionals to adopt this new technique. In this task, local academics and researchers can play an important role. It is important to encourage academics to publish the outcomes of any e-health projects internationally. By doing so, local academics and health scientists can influence policy makers to facilitate the wider use of e-health.

On the other hand, policy makers must adopt an open-minded approach to these new changes. Political will and commitment, which have often been lacking in developing countries, are important elements in bringing about changes in these societies. The willingness of policy makers to use ICT in health is important in integrating this tool into the health sector.

While the continuing brain drain is a serious problem in developing countries, little attempt has so far been made to use expatriate communities to the benefit of the development of these countries. This is certainly not a problem specific to e-health. However, in promoting e-health, expatriate experts (particularly experts in the areas of health and ICT) can make a significant contribution by bringing their knowledge, skills and expertise. Mobilization of experts from expatriate communities must be promoted, as these people have knowledge and skills not only in the subject area, but also about specific needs and cultural issues. From the policy makers’ side there must be an attitudinal change to accept and facilitate these experts.
In any environment, however, change is driven by individuals who have the motivation and desire to do so. In countries such as Sri Lanka, where national level e-health initiatives have lagged behind, there are numerous anecdotal examples of successful institutional level initiatives driven by such champions of e-health. Thus, it is clear that what is lacking in some countries is not resources or finances but leadership. Identifying such individuals within the health care system of the country and providing the necessary support to them to bring about the desired change are very important.

**Role of international agencies**

International agencies such as the World Health Organization (WHO), the United Nations (UN), the World Bank and certain regional organizations (e.g. the African Union and SAARC) have recognized the value of ICT in development. In fact the WHO has been instrumental in promoting e-health in a number of ways. Some of these organizations have been involved in e-health projects in different parts of the world. Regardless of the enthusiasm of these organizations for e-health, their activities have so far been piecemeal and fragmented. In most cases, the primary responsibility of these organizations has been limited to providing funds. Often, the outcome of these initiatives has been unhappy: once the initial funding dried up, the e-health projects stopped functioning. Another feature of these projects has been their disconnectedness. That is, most of them have functioned in isolation, and have not had links to other health work within the region concerned. There may be a number of factors contributing to this situation. International organization(s) initiating e-health projects in developing countries often have very limited understanding of the local situation. They may also have limited authority and recognition.

Another feature of e-health projects undertaken in developing countries is that they are commonly nothing more than a replication of projects carried out in industrialized countries. There is often no attempt to understand the specific needs of the locality and to find appropriate solutions to address those needs.

Thus, one of the main problems with international involvement in developing countries undertaking e-health projects has been a lack of coordinated management. This certainly invites another important question: ‘Who should drive e-health globally?’ There is no conclusive answer to this question. There is no authoritative organization to oversee e-health activities around the world – or in developing countries in particular. The question as to whether the UN, the WHO, the World Bank or any other organization should take the responsibility for e-health activities in developing countries remains unanswered. What makes responding to this question even harder is that it implies a number of other questions: whether this organization has the capacity to fulfil the expectations; whether it is willing to take this role; whether the role would be acceptable to the members of the international community. These are hard questions to answer. Without answers to these questions, it is difficult to formulate a global strategy for e-health.

**Box 8.1 Summary of the report of the WHO Global Observatory for eHealth**

<table>
<thead>
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<th>Key findings</th>
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<td>1. Active involvement of the WHO in the development of generic e-health tools, and guidance in creating and implementing e-health services would be welcomed by Member States.</td>
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2. The need for guidance in a broad range of e-health areas was expressed in particular by countries that do not belong to the Organization for Economic Co-operation and Development (OECD).

3. OECD countries did not express consistent views of their needs in e-health areas.

4. There is a need to raise awareness as to what e-health tools and services already exist at global and national levels.

**Proposed action**

The WHO, in collaboration with public and private sector partners, should take action in the following key areas:

1. **Provision of generic tools.** The WHO should facilitate the development of those generic e-health tools most sought after by its Member States, including tools for monitoring and evaluation of e-health services; drug registries; institutional patient-centred information systems that could be extended to include electronic health record systems; and directories of health care professionals and institutions.

2. **Access to existing tools.** As a parallel and complementary action, electronic directories of existing e-health tools and services should be created, with an emphasis on open-source solutions.

3. **Facilitating knowledge exchange.** An international knowledge exchange network to share practical experiences on the application and impact of e-health initiatives should be built. This would be Internet based and could be complemented by international e-health conferences to facilitate networking.

4. **Providing e-health information.** The WHO should create a digital resource of e-health information to support the needs of Member States in key areas such as e-health policy, strategy, security and legal matters.

5. **Education.** The use of e-learning programmes for professional education should be promoted in the health sciences, as well as in ongoing professional development. Collaborations should be developed to generate databases of existing e-learning courses. The WHO should advocate the inclusion of e-health courses within university curricula.

The role of the WHO in promoting e-health globally has to be acknowledged. The WHO has recognized the need for e-health to address health issues in developing countries. It has also been instrumental in forming strategies, policies and standards for the utility of e-health. For example, the WHO Global Observatory for eHealth (GOe) was established to provide Member States with strategic information and guidance on effective practices, policies and standards in e-health. The GOe produced the first WHO Global Survey on e-health, *eHealth Tools & Services: Needs of the Member States*, in 2005 (Box 8.1).

The WHO has formed an e-health standardization coordination group as a platform to promote stronger coordination among the key players in all technical areas of e-health standardization. The WHO has also initiated and assisted a number of e-health projects in different parts of the world. For example:
• The Telemedicine Alliance was implemented with the collaboration of the European Union and the International Telecommunication Union.29

• The WHO Regional Office for the Eastern Mediterranean (EMRO), in collaboration with the Islamic Republic of Iran Ministry of Health and Medical Education, organized the Fourth Regional e-Health Conference, which aimed to promote e-health.30

• The WHO has initiated several e-health projects in African countries to address health issues, advance health and medical education, and raise awareness of policy makers in the use of ICT in health.31

• A number of e-health projects have been undertaken in Sri Lanka (Table 8.1).

However, there is little evidence to show the success of any of these activities. One of the most critical problems has been the WHO’s role in funding e-health.

**Strategies at international level**

Strategies to promote e-health at international level include appointing an e-health governing body and linking international aid to e-health.

As already mentioned, there is a critical need for a global governing body to oversee e-health activities. Setting up such an organization with appropriate legal and regulatory rights should be a priority. While this body would have authority relating to e-health activities across the world, it should also have the necessary financial capability to fund its activities. An organization with no financial capability will be doomed to failure. A global authority in e-health would be instrumental in defining matters such as standards of practice, regulations and funding. Among other things, the agenda of such an organization should include education and training as a priority. Accreditation by this global e-health body would provide much-needed recognition for e-health education to flourish. The existence of a global body would also assist the private sector to explore business opportunities in this new field.

### Table 8.1 E-health projects in Sri Lanka

<table>
<thead>
<tr>
<th>Date</th>
<th>Project</th>
<th>Description</th>
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<tr>
<td>2001</td>
<td>Three-day course on basic and specialist skills in general surgery</td>
<td>The course was conducted by the Royal College of Surgeons of England and was delivered by distance education11</td>
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<td>2001</td>
<td>Feasibility study in partnership between the WHO and the Norwegian Centre for Telemedicine</td>
<td>This aimed to examine the potential for telemedicine in addressing problems of the health care sector in Sri Lanka12</td>
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<tr>
<td>2003</td>
<td>Pilot e-health project funded by the WHO in collaboration with the Ministry of Health of Sri Lanka</td>
<td>This low-cost, store-and-forward telemedicine system was designed to connect doctors in remote hospitals with specialists for consultation13</td>
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Lanka

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<tr>
<th>Year</th>
<th>Project Description</th>
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<tr>
<td>2003</td>
<td>WHO-initiated pilot programme This was designed to create a national telemedicine system, paying attention to wireless communication technologies in telehealth.</td>
</tr>
<tr>
<td>2005</td>
<td>‘E-health Emergency Hospital’ project The objectives of the project were to improve recording and reporting, improve communication via the Internet and email, and improve access to specialist advice in cases of emergency.</td>
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</table>

It is important that international development assistance schemes should be linked to the promotion of e-health. Currently, there are various overseas development funds that assist health and ICT projects. Yet, development assistance funds are not designed to help e-health. International donors must acknowledge that promotion of e-health is an integral part of the development of health in developing countries. Similarly, international aid for infrastructure development should be tied to the promotion of e-health.

**Conclusion**

Although e-health has been generally accepted as a useful technique for improving access to health services in developing countries, for various reasons it has made very little progress. Policies at national and international level have not yet been able to facilitate e-health. At the national level, efforts must be made to raise awareness of policy makers, health personnel and business communities about the benefits of e-health. Policy makers must also have a more open-minded attitude towards e-health. At the international level, there is a pressing need for a global authority to oversee e-health. This organization must have the financial and legal capacity to promote e-health. Overseas development assistance schemes must include e-health as an integral part of the development and promotion of health generally.

**Further reading**


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